

What is claimed is:

1. An apparatus for controlling the respiration of a controlled body, comprising:

5           a first circuit having an end connected to said controlled body and an opposite end connected to the outside of the apparatus;

10           a first check valve disposed in said first circuit for allowing said controlled body to inhale from said outside through said first circuit and preventing exhaled air from said controlled body from flowing into said first circuit;

15           a first solenoid-operated valve disposed in said first circuit for selectively connecting and disconnecting a respiratory system of said controlled body to and from said outside;

              a second circuit having an end connected to said controlled body and an opposite end connected to said outside;

20           a second check valve disposed in said second circuit for allowing said controlled body to exhale to the outside through said second circuit and preventing said controlled body from inhaling through said second circuit;

25           a second solenoid-operated valve disposed in said second circuit for selectively connecting and disconnecting the respiratory system of said controlled body to and from said outside; and

              a controller for controlling said first solenoid-

operated valve and said second solenoid-operated valve at a predetermined time in a respiratory cycle thereby to disconnect the respiratory system of said controlled body from said outside, and controlling said first solenoid-  
5 operated valve and said second solenoid-operated valve after elapse of a predetermined period from said predetermined time thereby to connect the respiratory system of said controlled body to said outside.

10 2. An apparatus according to claim 1, further comprising:

a timer circuit for starting to measure time when said first solenoid-operated valve and said second solenoid-operated valve have started to disconnect the respiratory system of said controlled body from said outside, and outputting a time measuring cycle end signal after elapse of a predetermined period from starting to measure time; and

15 20 a solenoid-operated valve controller responsive to said time measuring cycle end signal, for controlling said first solenoid-operated valve and said second solenoid-operated valve, independently of said controller, to connect the respiratory system of said controlled body to said outside.

25 3. An apparatus according to claim 1, further comprising:

a pressure detector for detecting when an exhaling pressure in said second circuit reaches a predetermined

pressure and outputting a detected pressure signal; and  
a solenoid-operated valve controller responsive to said  
detected pressure signal, for controlling said first  
solenoid-operated valve and said second solenoid-operated  
5 valve, independently of said controller, to connect the  
respiratory system of said controlled body to said outside.

4. An apparatus according to claim 1, further  
comprising:

10 an open switch for outputting an open signal when  
operated; and  
a solenoid-operated valve controller responsive to said  
open signal, for controlling said first solenoid-operated  
valve and said second solenoid-operated valve, independently  
15 of said controller, to connect the respiratory system of  
said controlled body to said outside.

5. An apparatus according to claim 1, further  
comprising:

20 a vent valve disposed in said second circuit, for  
connecting said second circuit to said outside in the  
presence of a predetermined exhaling pressure or higher in  
said second circuit.

25 6. An apparatus according to claim 1, wherein said  
first solenoid-operated valve and said second solenoid-  
operated valve connect the respiratory system of said

controlled body to said outside when said first solenoid-operated valve and said second solenoid-operated valve are de-energized.

5           7. An apparatus according to claim 1, further comprising:

an audio output unit for announcing the progress of a respiration control cycle of said controller by voice.

10           8. An apparatus according to claim 1, further comprising:

a flow rate sensor for detecting a respiratory state of said controlled object as an air flow rate, said flow rate sensor being connected between said first circuit and said second circuit, and said controlled body;

said controller comprising means for controlling said first solenoid-operated valve and said second solenoid-operated valve based on said detected air flow rate.

20           9. An apparatus according to claim 1, further comprising:

a filter for removing bacteria, said filter being connected between said first circuit and said controlled body.

25           10. An apparatus according to claim 1, wherein said second circuit includes a dehumidifying chamber for

dehumidifying exhaled air from said controlled body.

11. An apparatus according to claim 10, wherein said dehumidifying chamber houses a silica gel therein.